

**EL 967 94 781 6**

- 20 -

1 We claim:

1. In a diaphragm for resisting lateral forces imposed on a building structure, an improved mechanical connection between a structural panel in said diaphragm and the framing members supporting said structural panel, said

5 improved mechanical connection comprising:

a. said structural panel having a distal side, a proximal side, and a plurality of edge faces;

b. said plurality of framing members disposed in registration with said proximal side of said structural panel near said edge faces;

10 c. a plurality of perimeter fasteners connecting said structural panel to said framing members; and

d. means for reducing bending of said perimeter fasteners attached to a substantial number of said perimeter fasteners, said means for reducing bending of said perimeter fasteners acting when said lateral

15 forces are imposed on said building structure.

2. The connection of claim 1, wherein:

said means for reducing bending of said perimeter fasteners consists of individual, substantially u-shaped clips having a central member and flanges extending from said central member, each of said u-shaped

20 clips having said flanges pierced by one of said perimeter fasteners.

3. The connection of claim 1, wherein:

said means for reducing bending of said perimeter fasteners consists of a perimeter edging member, said perimeter edging member being pierced by substantially all of said perimeter fasteners, and said

25 perimeter edging member being disposed near said edge faces of said structural panel.

4. The connection of claim 3, wherein:

said perimeter edging member is divided into a plurality of perimeter edging members, each being pierced by a plurality of said perimeter

30 fasteners.

5. The connection of claim 4, wherein:

said perimeter edging members are formed as elongated members with first face members.

- 1 6. The connection of claim 5, wherein:  
said first face members are disposed between said proximal side of  
said structural panel and said framing members near said edge faces of  
said structural panel.
- 5 7. The connection of claim 5, wherein:  
said first face members are disposed on said distal side of said  
structural panel near said edge faces of said structural panel.
8. The connection of claim 5, wherein:  
said first face members are disposed within said structural panel near  
10 said edge faces of said structural panel.
9. The connection of claim 5, wherein:  
said perimeter edging members are disposed with said first face  
members disposed within said structural panel near said edge faces of  
said structural panel, and additional said perimeter edging members are  
15 further disposed within said structural panel near said edge faces of  
said structural panel.
10. The connection of claim 5, wherein:  
said perimeter edging members are disposed with said first face  
members between said proximal side of said structural panel and said  
20 framing members, and additional said perimeter edging members are  
disposed with said first face members on said distal side of said  
structural panel near said edge faces of said structural panel.
11. The connection of claim 5, wherein:  
said perimeter edging members are disposed with said first face  
25 members disposed within said structural panel near said edge faces of  
said structural panel, and additional said perimeter edging members are  
disposed with said first face members on said distal side of said  
structural panel near said edge faces of said structural panel.
12. The connection of claim 5, wherein:  
30 said perimeter edging members are disposed with said first face  
members disposed within said structural panel near said edge faces of  
said structural panel, and additional said perimeter edging members are  
disposed with said first face members between said framing members  
and said distal side of said structural panel.

967 947 816

- 1 13. The connection of claim 4, wherein:  
said perimeter edging members are formed as elongated, substantially  
u-shaped members, having central members with first flanges and  
second flanges extending from said central members.
- 5 14. The connection of claim 13, wherein:  
said first flanges of said u-shaped member are disposed between said  
framing members and said proximal side of said structural panel, and  
said second flanges are disposed on said distal side of said structural  
panel near said edge faces.
- 10 15. The connection of claim 13, wherein:  
said first flanges of said u-shaped member are disposed within said  
structural panel near said edge faces, and said second flanges of said  
u-shaped members are disposed on said distal side of said structural  
panel near said edge faces.
- 15 16. The connection of claim 13, wherein:  
said first flanges of said u-shaped member are disposed between said  
framing members and said proximal side of said structural panel, and  
said second flanges are disposed within said structural panel.
17. The connection of claim 13, wherein:  
20 said first flanges of said u-shaped member are disposed within said  
structural panel near said edge faces, and said second flanges are also  
disposed within said structural panel near said edge faces.
18. The connections of claims of 14, 15, 16 or 17 wherein:  
each of said perimeter fasteners protected from bending by one of said  
25 u-shaped members pierces both of said flanges of one of said u-shaped  
members.
19. An improved structural panel to be used with perimeter fasteners and  
framing members to build a diaphragm, comprising:  
a structural panel having a distal side, a proximal side, and a plurality  
30 of edge faces, said structural panel being formed with means for  
reducing the bending of said perimeter fasteners, said means for  
reducing the bending of said perimeter fasteners being disposed near  
said edge faces of said structural panel.
20. A diaphragm for resisting lateral forces imposed on a building structur ,  
35 said diaphragm comprising:

- 1       a. a structural panel having a distal side, a proximal side, and a plurality of edge faces;
  - b. a plurality of framing members disposed in registration with said proximal side of said structural panel near said edge faces;
  - 5       c. a plurality of closely spaced perimeter fasteners connecting said structural panel to said framing members; and
  - d. means for reducing bending of said perimeter fasteners attached to a substantial number of said perimeter fasteners.
21. A vertically disposed diaphragm for resisting lateral forces imposed on a
- 10 building structure, sitting on a foundation for said building structure, said diaphragm comprising:
- a. a structural panel having a distal side, a proximal side, and a plurality of edge faces;
  - 15       b. a plurality of framing members disposed in registration with said proximal side of said structural panel near said edge faces, said framing members consisting of a first chord, a second chord, a top strut and a bottom strut, said first and second chords bypassing said bottom strut to sit on said foundation;
  - 20       c. a plurality of closely spaced perimeter fasteners connecting said structural panel to said framing members; and
  - d. means for reducing bending of said perimeter fasteners attached to a substantial number of said perimeter fasteners.
22. In a diaphragm for resisting lateral forces imposed on a building structure, an improved mechanical connection between a structural panel in
- 25 said diaphragm and the frame supporting said structural panel, said improved mechanical connection comprising:
- a. said structural panel having a distal side, a proximal side, and a plurality of edge faces;
  - 30       b. said frame disposed in registration with said proximal side of said structural panel near said edge faces;
  - c. a plurality of closely spaced perimeter fasteners connecting said structural panel to said frame; and
  - 35       d. means for reducing bending of said perimeter fasteners attached to a substantial number of said perimeter fasteners, said means for reducing bending of said perimeter fasteners acting when said lateral forces are imposed on said building structure.